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JOHN C. SCHROER
COMMISSIONER

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GOVERNOR

TO: Will Reid
Assistant Chief Engineer of Operations

FROM: Brad Freeze, Director of Traffic Operations

SUBJECT: **Proprietary Item Request and Justification**
City of Franklin

1) **Traffic Signal Controllers, Malfunction Management Units (MMU), and Load Switches**
2) **Traffic Signal Battery Backup System**
3) **Traffic Signal Detection**
4) **Traffic Signal Emergency Vehicle Preemption**
5) **Traffic Signal Closed Circuit Television (CCTV)**

1) **Traffic Signal Controllers, Malfunction Management Units (MMU), and Load Switches:** The City of Franklin is requesting that Siemens M52 TS2 Type 2 and Siemens M60 ATC controllers, EDI SSM – 16LE(ip) Enhanced NEMA Malfunction Management Units (MMU), and Power Distribution & Control PDC SSS86I/O load switches be used in all signalization projects within the City over the next three years where Federal and/or State funding are used. The following are justification items for this request:

The City of Franklin currently operates and maintains Siemens controllers at all of its 112 signalized intersections within the City's jurisdiction. In 2014, the City upgraded its traffic control system to the Siemens TACTICS traffic management software to better manage and operate the traffic signal and ITS systems. The City will require the M60 type of Siemens ATC controller to ensure that they have full functionality of the traffic signal controller with its next upgrade of the traffic management software, and that it's not limited by the basic NTCIP protocols. This full functionality will be needed to provide for adaptive signal control as part of our arterial management process, emergency vehicle preemption, and priority vehicle control and necessary to maintain synchronization with the existing traffic signal systems. The EDI SSM – 16LE(ip) Enhanced NEMA MMU and the PDC SSS86I/O load switches are required due to its compatibility with Siemens controllers and are necessary for the units to communicate with and be monitored at the City's Advanced Traffic Operations Center (TOC). These devices are Ethernet ready for turnkey communications and necessary to maintain synchronization with the existing traffic signal systems.

The City of Franklin staff has been extensively trained to install, operate, maintain, program, and troubleshoot Siemens ATC controllers, EDI NEMA MMUs, and PDC SSS86I/O load switches. This knowledge allows the technicians to quickly diagnose problems with field units which reduces the time required to maintain the system overall and helps keep the system operational during

heavy traffic times to ensure maximum capacity of the synchronized system. By utilizing the these devices as the standard for the City, there will be a cost savings in stocking replacement equipment which will result in faster and less costly repair, as well as continuing compatibility with the central system software.

2) **Traffic Signal Battery Backup System:** The City of Franklin is requesting that Clary SP Series SP2000PD-N/R Battery Backup System be used in all signalization projects within the City over the next three years where Federal and/or State funding are used. The following are justification items for this request:

   The City of Franklin currently operates and maintains Clary Battery Backup System at all of its 42 signalized battery backup system intersections within the City's jurisdiction. As the City expands its battery backup system within its fiber optic network, these devices are necessary for the units to maintain synchronization and be monitored at the City's Advanced Traffic Operations Center (TOC) and is Ethernet ready for turnkey communications and necessary to maintain synchronization with the existing traffic signal systems.

   The City of Franklin staff has been extensively trained to operate, maintain, and troubleshoot Clary Battery Backup Systems. This knowledge allows the technicians to quickly diagnose problems with field units which reduces the time required to maintain the system overall and helps keep the system operational during heavy traffic times to ensure maximum capacity of the synchronized system. By utilizing the these devices as the standard for the City, there will be a cost savings in stocking replacement equipment which will result in faster and less costly repair..

3) **Traffic Signal Detection:** The City of Franklin is requesting that Wavetronix traffic signal radar detection equipment be used in all signalization projects within the City over the next three years where Federal and/or State funding are used. The radar detection equipment includes the following:

   a. Stop Bar Presence detection and control – Wavetronix SmartSensor Matrix SS-225
   b. Advanced detection and control – Wavetronix SmartSensor Advance SS-200V
   c. Mid-block detection and monitoring – Wavetronix HD
   d. Cabinet Interface Device – Wavetronix Click 650
   e. Detector Rack Cards – Wavetronix Click 112/114
   f. Serial to Ethernet – Wavetronix Click 301

   This request is based on the necessity to provide highly reliable detection for the synchronization with the existing traffic signal systems operated and maintained by the City. The following are justification items for this request:

   The City of Franklin currently operates and maintains Wavetronix radar detection at 14 signalized intersections within the City's jurisdiction. The City began utilizing the Wavetronix radar detection units to replace other technologies due to their unreliability which has resulted in increased efficiency of signalized intersection operations within the City. Reliable detection is a key component in the City's efforts to provide a more efficient traffic system and to reduce air pollution within the City.

   The City of Franklin staff has been extensively trained to install, operate, maintain, program, and troubleshoot the Wavetronix detection system. This knowledge allows the technicians to quickly diagnose problems with field units which reduces the time required to maintain the system overall and helps keep the system operational during heavy traffic times to ensure maximum capacity of the synchronized system. By utilizing these devices as the standard for the City, there will be a cost savings in stocking replacement equipment which will result in faster and less costly repair.

4) **Traffic Signal Emergency Vehicle Preemption:** The City of Franklin is requesting that Global Traffic Technologies Opticom Dual Mode emergency vehicle preemption equipment be used in all signalization projects within the City over the next three years where Federal and/or State funding are used. The following are justification items for this request:

   The City of Franklin currently operates and maintains Global Traffic Technologies Opticom Dual Mode emergency vehicle preemption equipment at all of its 92 signalized emergency vehicle preemption intersections within the City's jurisdiction. The City is installing this type of emergency vehicle preemption equipment with new developments and with new signalization projects. The City of Franklin investigated several different types of preemption and found that Opticom emergency vehicle preemption equipment is the most reliable and best meets the City's needs. The desire of the City is to increase the efficiency of standard system operations as part of the City's Advanced Traffic Management System while providing quicker movement of the emergency vehicles through the system when needed. For these reasons the City is specifying Dual Mode preemption equipment allowing an eventual migration to GPS-based preemption routing using dual-mode emitters already installed in the Williamson County fleet of Emergency Medical Service vehicles..

   The City of Franklin staff has been extensively trained to install, operate, maintain, program, and troubleshoot Global Traffic Technologies Opticom Dual Mode emergency vehicle preemption equipment. This knowledge allows the technicians to quickly diagnose problems with field units which reduces the time required to maintain the system overall and helps keep the system operational during heavy traffic times to ensure maximum capacity of the synchronized system. By utilizing the these devices as the standard for the City, there will be a cost savings in stocking replacement equipment which will result in faster and less costly repair.

5) **Traffic Signal Closed Circuit Television (CCTV):** The City of Franklin is requesting that Vicon Dome IP - MKII Pressurized Camera CCTV devices be used in all signalization projects within the City over the next three years where Federal and/or State funding are used. The following are justification items for this request:

   The City of Franklin currently operates and maintains a Vicon CCTVs at all of the 29 operating CCTV locations throughout the City and within the City's jurisdiction. The City is installing this type of CCTV with any new development requiring the installation of a CCTV to monitor traffic conditions in the area. The City currently has only Vicon CCTV control software Axis 282 located at the City's Advanced TOC. The desire of the City is to increase the efficiency of its signal system by having the ability to monitor situations, modify settings at the TOC or evaluate an intersection before going to the area for troubleshooting.

   The City of Franklin staff has been extensively trained to install, operate, maintain, and troubleshoot Vicon Dome Camera CCTV devices. This knowledge allows the technicians to quickly diagnose problems with field units which reduces the time required to maintain the system overall and helps keep the system operational during heavy traffic times to ensure maximum capacity of the synchronized system. By utilizing the these devices as the standard for the City, there will be a cost savings in stocking replacement equipment which will result in faster and less costly repair.

I, Brad Freeze, Director of the Traffic Operations Division of the Tennessee Department of Transportation, do hereby certify that in accordance with the requirements of 23 CFR 635.411(a) (2) that the patented or proprietary items listed above are essential for the synchronization of existing facilities.

Assistant Chief Engineer of Operations

2/7/18
Date

ENGINEERING DEPARTMENT

Paul Holzen
Director/City Engineer

Dr. Ken Moore
Mayor

Eric S. Stuckey
City Administrator

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December 8, 2017

Stephen K. Bryan, P.E., PTOE
Traffic Engineer Section Manager
Tennessee Department of Transportation Traffic Operations Division
James K. Polk Bldg., 12th Floor
505 Deaderick St
Nashville, TN 37243

RE: Proprietary Item Request and Justification
Request for Proprietary Traffic Signal Products as Specification 730F
City of Franklin - Williamson County, TN

Dear Mr. Bryan:

The City of Franklin, Tennessee, would like to request a proprietary product certification for the following traffic signal equipment over the next (3) three years where Federal and/or State funding are used. The use of these specific items is for the full synchronization capabilities within the existing and future traffic signal system;

1. **Traffic Controller** – Siemens M52 TS2 Type 2 and Siemens M60 ATC
2. **MMU or Signal Monitor** - EDI SSM - 16LE(ip) Enhanced NEMA MMU
3. **Battery Backup** – Clary SP Series SP2000PD-N/R
4. **Detector** – Wavetronix Radar Detection (models SmartSensor Matrix, SmartSensor Advance, SmartSensor HD)
5. **CCTV** – Vicon Dome IP - MKII Pressurized Camera
6. **Preemption** – Global Traffic Technologies Opticom Dual Mode Emergency Vehicle Priority Control System
7. **Load Switches** – Power Distribution & Control, Inc. PDC SSS86I/O

The above items are essential for synchronization with the existing City of Franklin facilities. This request for this equipment is also to continue the standardization of the traffic system to ensure that the comprehensive maintenance and spare equipment programs can continue to be managed effectively. The City currently operates and maintains 112 traffic signals and 29 CCTVs throughout its system.

These specific items will help the City maintain the inventory of parts that the City's employees have already been trained to troubleshoot and maintain. They will also aid in the continuous efficiency of

normal operations, maintenance activities and increase safety for the City of Franklin. Detailed descriptions of the model numbers, features and functionalities of the requested items is given below.

Traffic Signal Controller, Malfunction Management Unit (MMU), Battery Backup, and Load Switches:

The City of Franklin is requesting that the Siemens M52 TS2 Type 2 and M60 ATC controllers, EDI SSM - 16LE(ip) Enhanced NEMA Malfunction Management Units, the Clary SP Series SP2000PD-N/R battery backup, and PDC SSS86I/O load switches be used in all signalization projects within the City over the next three years where Federal and/or State funding are used.

The City of Franklin currently operates and maintains Siemens controllers at all of its 112 signalized intersections within the City's jurisdiction. In 2014, the City upgraded its traffic control system to the Siemens TACTICS Traffic Management software to better manage and operate the traffic signal and ITS systems. Over the past 10 years, the City has been in the process of upgrading its communication infrastructure to a fiber optic IP Ethernet system to help synchronize and standardize the system. Currently 61 signalized intersections and 29 CCTVs are connected with the Fiber network. The traffic controller, MMU, and battery backup system as well as the CCTV, radar detectors listed, all communicate using the IP Ethernet system.

The City will require the M60 type of Siemens ATC controller to ensure that they have full functionality of the traffic signal controller with its next upgrade of the traffic management software, and that it's not limited by the basic NTCIP protocols. This full functionality will be needed in the foreseeable future to provide for adaptive signal control as part of our arterial management process, emergency vehicle preemption, and priority vehicle control.

The EDI SSM 16LE(ip) Enhanced NEMA MMU and Clary Battery backup system are necessary in order for the units to communicate with and be monitored by City employees at the City's Advanced Traffic Operations Center (TOC). Both devices are ethernet ready for turn key communications with the existing system. The City of Franklin currently operates Clary battery backup systems at all of the 42 operating battery backup systems throughout the City and within the City's jurisdiction. The PDC SSS86I/O load switch is required due to its compatibility with Siemens controllers.

The City of Franklin staff has been extensively trained to install, operate, maintain, program, and troubleshoot Siemens controllers, EDI MMU and Clary Battery backups. This knowledge allows the technicians to quickly diagnose problems with field units which reduces the time required to maintain the system overall and helps keep the system operational during heavy traffic times to insure maximum capacity of the synchronized system. By utilizing the Siemens controller as the standard for the City, there will be a cost savings in stocking replacement equipment which will result in faster and less costly repair, as well as continuing compatibility with the central system software.

ENGINEERING DEPARTMENT

Paul Holzen
Director/City Engineer

Dr. Ken Moore
Mayor

Eric S. Stuckey
City Administrator

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Traffic Signal Detection

The City of Franklin is requesting that Wavetronix traffic signal radar detection equipment be used in all signalization projects within the City over the next three years where Federal and/or State funding are used. The radar detection equipment includes the following:

a. Stop Bar Presence detection and control – Wavetronix SmartSensor Matrix SS-225
b. Advanced detection and control – Wavetronix SmartSensor Advance SS-200V
c. Mid-block detection and monitoring – Wavetronix HD
d. Cabinet Interface Device – Wavetronix Click 650
e. Detector Rack Cards – Wavetronix Click 112/114
f. Serial to Ethernet – Wavetronix Click 301

This request is based on the necessity to provide highly reliable detection for the synchronization with the existing traffic signal systems operated and maintained by the City. The following are justification items for this request:

The City of Franklin currently operates and maintains Wavetronix radar detection at fourteen (14) signalized intersections within the City's jurisdiction. The City has begun utilizing the Wavetronix radar detection units to replace other technologies due to their unreliability which has resulted in increased efficiency of signalized intersection operations within the City. Reliable detection is a key component in the City's efforts to provide a more efficient traffic system and to reduce air pollution within the City of Franklin Area.

The City of Franklin staff has been extensively trained to install, operate, maintain, and troubleshoot the Wavetronix detection system. This allows our technicians to quickly diagnose problems with field units which reduces the time required to maintain the system overall and helps keep the system operational during heavy traffic times to insure maximum capacity of the synchronized system. By utilizing Wavetronix traffic signal radar detection equipment as the standard for the City, there will be a cost savings in stocking replacement equipment and will result in faster and less costly repair.

Emergency Vehicle Priority Control System

The City of Franklin is requesting that the Global Traffic Technologies Opticom Dual Mode Emergency Vehicle Preemption equipment be used in all signalization projects within the City over the next three years where Federal and/or State funding are used. The following are justification items for this request:

The City of Franklin currently operates and maintains Opticom emergency vehicle preemption equipment at 92 signalized intersections within the City's jurisdiction. The City is installing this type of emergency vehicle preemption equipment with new developments and with new City funded projects. The City of Franklin investigated several different types of preemption and found that Opticom emergency vehicle preemption equipment is the most reliable and best meets the City's

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needs. The desire of the City is to increase the efficiency of standard system operations as part of the City's Advanced Traffic Management System while providing quicker movement of the emergency vehicles through the system when needed. For these reasons the City is specifying Dual Mode preemption equipment allowing an eventual migration to GPS-based preemption routing using dual-mode emitters already installed in the Williamson County fleet of Emergency Medical Service vehicles.

The City of Franklin staff has been extensively trained to install, operate, maintain, and troubleshoot Opticom dual mode emergency vehicle preemption equipment. By utilizing the Opticom dual mode emergency vehicle preemption equipment as the standard for the City, there will be a cost savings in stocking replacement equipment which will result in faster and less costly repairs.

CCTV

The City of Franklin is requesting that the Vicon Dome IP - MKII Pressurized Camera be used in all locations where CCTVs are designed for within the City over the next three years where Federal and/or State funding are used. The following are justification items for this request:

The City of Franklin currently operates and maintains a Vicon CCTVs at all of the 29 operating CCTV locations throughout the City and within the City's jurisdiction. The City is installing this type of CCTV with any new development requiring the installation of a CCTV to monitor traffic conditions in the area. The City currently has only Vicon CCTVs and Vicon CCTV control software Axis 282 located at its TOC. The desire of the City is to increase the efficiency of its signal system by having the ability to monitor situations, modify settings at the TOC or evaluate an intersection before going to the area for troubleshooting.

The City of Franklin staff has been extensively trained to install, operate, maintain, and troubleshoot Vicon Dome IP - MKII Pressurized Camera equipment and software. By utilizing this CCTV system as the standard for the City, there will be a cost savings in stocking replacement equipment and will result in faster and less costly repair.

Thank you for consideration of this request.

Respectfully, for the City of Franklin,

Carl Baughman

Carl Baughman, P. E.
City Traffic Engineer
City of Franklin
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Attachment